FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

January 29 to February 4, 2017 (Week 05)

Overall Summary

- Influenza activity continues to be reported across Canada and two regions are reporting widespread influenza activity.
- A slight increase in the percent of tests positive for influenza and number of laboratory confirmed influenza outbreaks was observed in week 5.
- In week 05, 56 laboratory confirmed outbreaks were reported (up from 54 in the previous week), the majority in long-term care facilities and due to influenza A.
- A(H3N2) continues to be the most common type of influenza affecting Canadians.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- A Canadian study reported an interim estimate of vaccine effectiveness of 42% against influenza A(H3N2) in Canada. The estimate is greater than the estimate for the previous A(H3N2) dominated season where no vaccine protection was found. The results of the study are consistent with expected vaccine effectiveness estimates for influenza A(H3N2).
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 05, all but two regions (one each in NB and MB) are reporting influenza or influenza-like illness activity. Sporadic influenza activity was reported in 24 regions across ten provinces and territories. Localized activity was reported in 24 regions across ten provinces. Widespread activity was reported in two provinces (one region each in BC and QC). For more details on a specific region, click on the map.

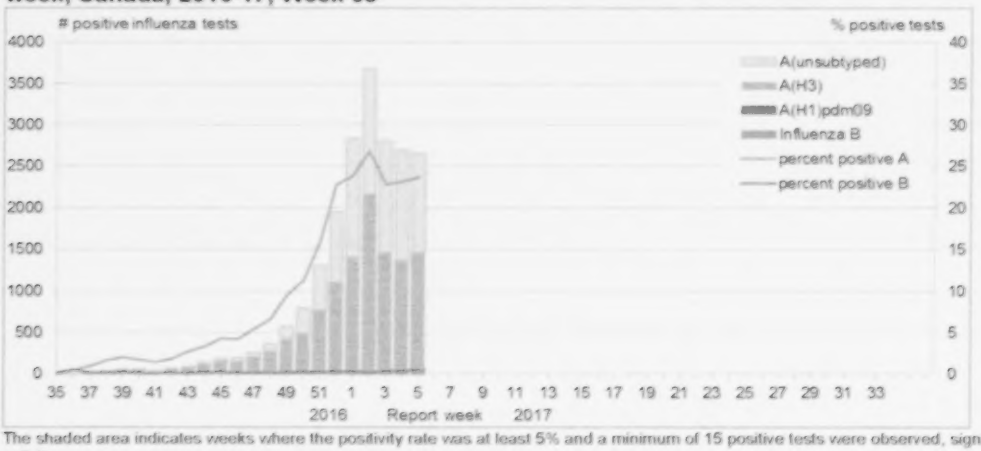
Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 05

Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 05, the percentage of tests positive for influenza increased since the previous week from 23.5 to 24.3%. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

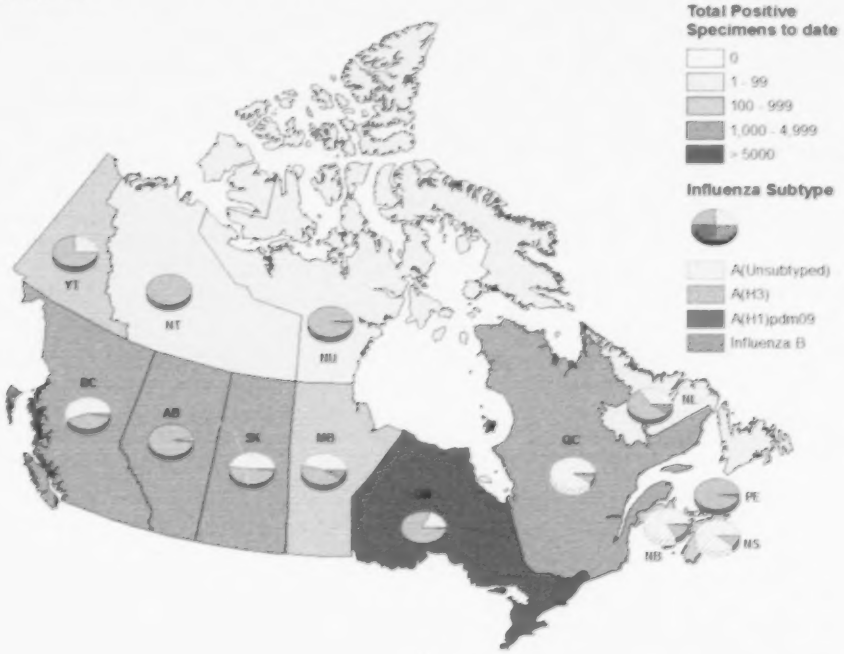
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 05



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

Nationally in week 05, 2,547 positive influenza tests were reported, fewer than the 2,586 tests reported in week 04. Western and Central-Eastern regions of Canada (BC, AB and ON) reported lower influenza detections in week 05 while a total of three provinces in the Central-Eastern and Atlantic regions of Canada reported higher influenza detections (QC, NB and NL). To date, 19,377 laboratory confirmed influenza detections have been reported, of which 98% have been influenza A. Influenza A(H3N2) is the most common subtype detected, representing over 99% of subtyped influenza A detections (10817/10866). For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 05



To date, detailed information on age and type/subtype has been received for over 14,347 laboratory confirmed influenza cases. Among cases with reported age and type/subtype information, almost half of the reported influenza cases and the largest proportion (47%) of influenza A (H3N2) cases were in adults aged 65+ .

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 05

Age groups (years)	Week (January 29 to February 4, 2017)					Cumulative (August 28, 2016 to February 4, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	123	0	30	93	<5	>1150	<5	519	631	49	>1199	8%
5-19	136	0	37	99	<5	>1392	<5	745	647	44	>1436	10%
20-44	199	0	70	129	<5	>2175	<5	1199	976	40	>2215	15%
45-64	223	0	78	145	5	2395	6	1241	1148	53	2448	17%
65+	632	0	191	441	8	>6967	<5	3256	3711	82	>7049	49%
Total	1313	0	406	907	>13	>14079	15	6960	7113	268	>14347	100%
Percentage[2]	99%	0%	31%	69%	1%	98%	0%	49%	50%	2%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x: Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

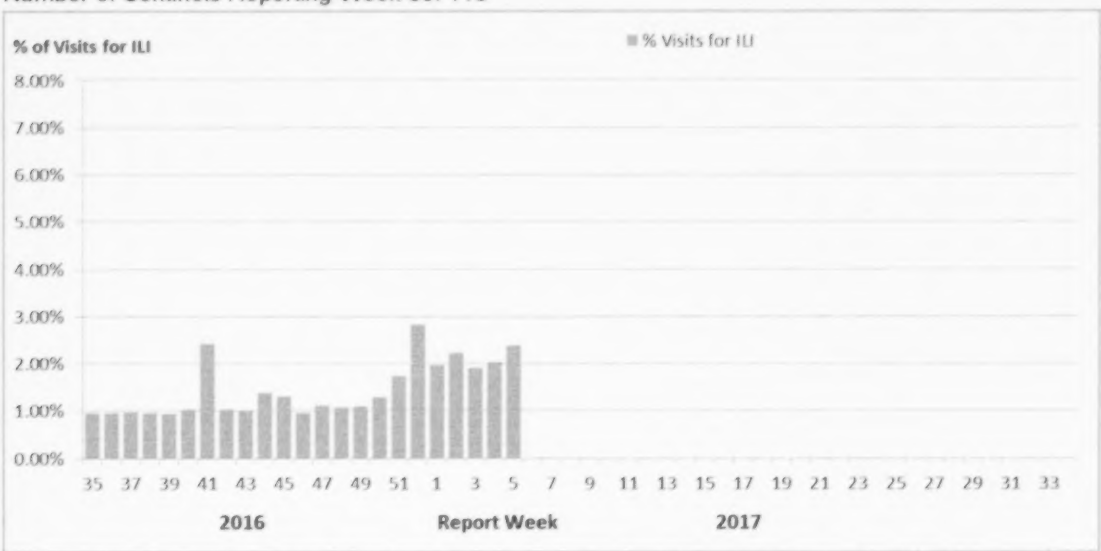
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 05, 2.4% of visits to healthcare professionals were due to influenza-like illness, up slightly from 2.0% in the previous week.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 05: 118



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

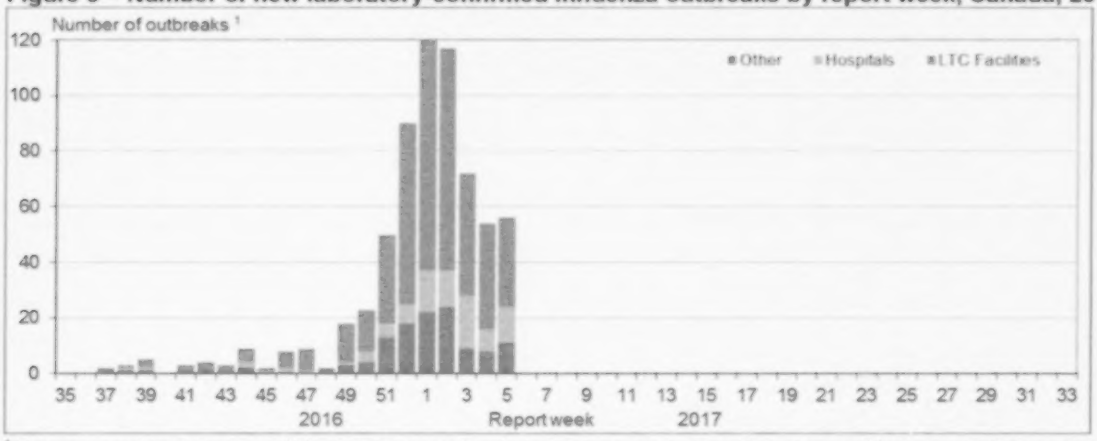
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 05, 56 laboratory confirmed influenza outbreaks were reported, two more than the previous week: 32 in long-term care (LTC) facilities, 13 in hospitals and 11 in institutional or community (other) settings. All but one outbreak were due to influenza A. Of the outbreaks with known strains or subtypes, 12 were due to influenza A(H3N2) and 22 were due to influenza A(UnS). An additional four outbreaks due to ILI were reported in schools.

To date this season, 662 outbreaks have been reported and the majority (67%) have occurred in LTC facilities. Compared to the same period in the most recent previous A(H3N2) predominant season (2014-15), 1,225 outbreaks were reported, of which 74% occurred in LTC facilities.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 05



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 05, 336 influenza-associated hospitalizations were reported by participating provinces and territories, down from 423 reported in the previous week*. Influenza A accounted for nearly all of hospitalizations (99%). The largest proportion of hospitalizations (66% were among adults aged 65+. A total of six intensive care unit (ICU) admissions and 21 deaths were reported in week 05.

To date this season, 3,349 hospitalizations have been reported, of which 99% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (1932/1947) were influenza A(H3N2). Adults 65+ accounted for 69% of the hospitalizations. One hundred and twelve ICU admissions and greater than 130 deaths have been reported. The majority of deaths were reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 05

Age Groups (years)	Cumulative (August 28, 2016 to February 4, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	234	8	242 (7%)	7	6%	0	x%
5-19	144	8	152 (5%)	8	7%	<5	x%
20-44	181	<5	>181 (x%)	10	9%	0	x%
45-64	448	<5	>448 (x%)	35	31%	21	x%
65+	2294	26	2320 (69%)	53	47%	109	x%
Total	3301	48	3349 (99%)	113	100%	>130	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 05, 29 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. All cases but four were due to influenza A. The number of hospitalizations reported in week 04 is below the six year average for the same time period (Figure 7).

To date this season, 314 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 40% of hospitalizations. Influenza A accounted for 93% (n=292) of the reported hospitalizations, of which 41% (n=119) were influenza A(H3N2) and the remainder were A(UnS). Additionally, 55 intensive care unit (ICU) admissions have been reported, of which the largest proportion (27%) was reported in children 0-23 months. A total of 36 ICU cases reported at least one underlying condition or comorbidity. No deaths have been reported this season.

In 2014-15, the previous influenza A(H3N2)-predominant season, there were 489 hospitalizations, 56 ICU admissions and less than five deaths reported as of week 05.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 05

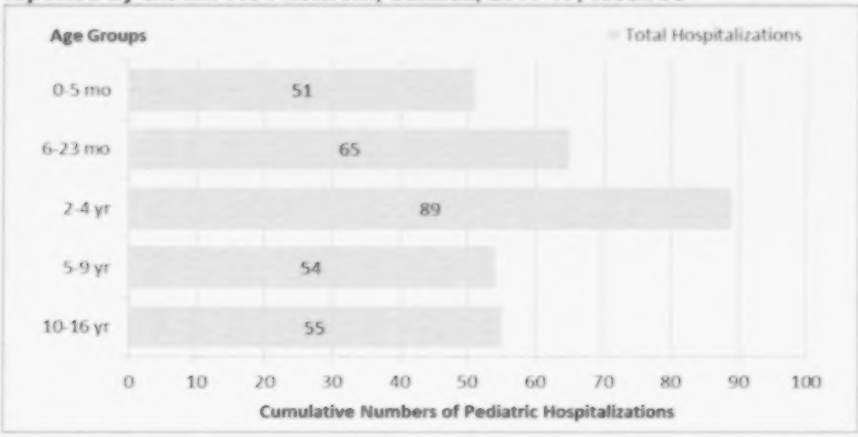
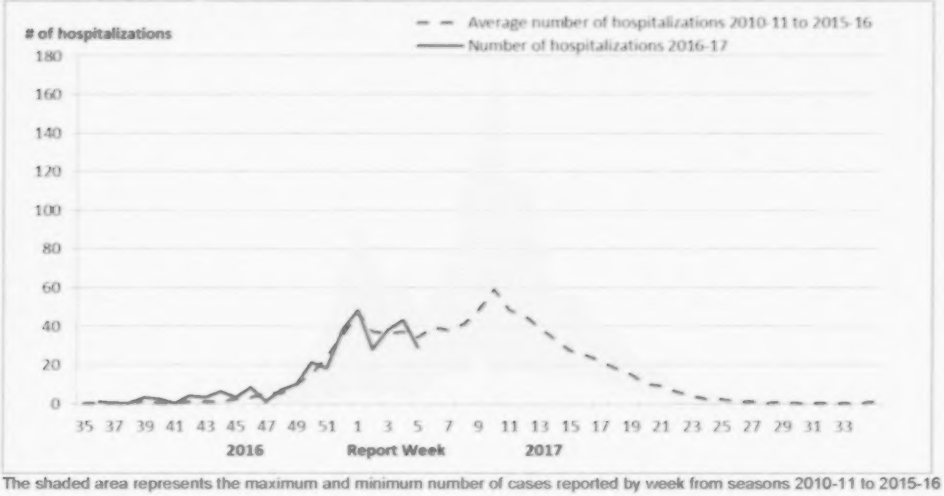


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 05



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 05, 109 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). All but three cases were due to influenza A and the majority of cases (74%) occurred in adults aged 65+.

To date this season, 736 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. All but eight hospitalized cases were due to influenza A. Adults aged 65+ accounted for 77% of hospitalizations. To date, 39 intensive care unit (ICU) admissions have been reported. A total of 25 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 67 years. A total of 23 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 82 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 05

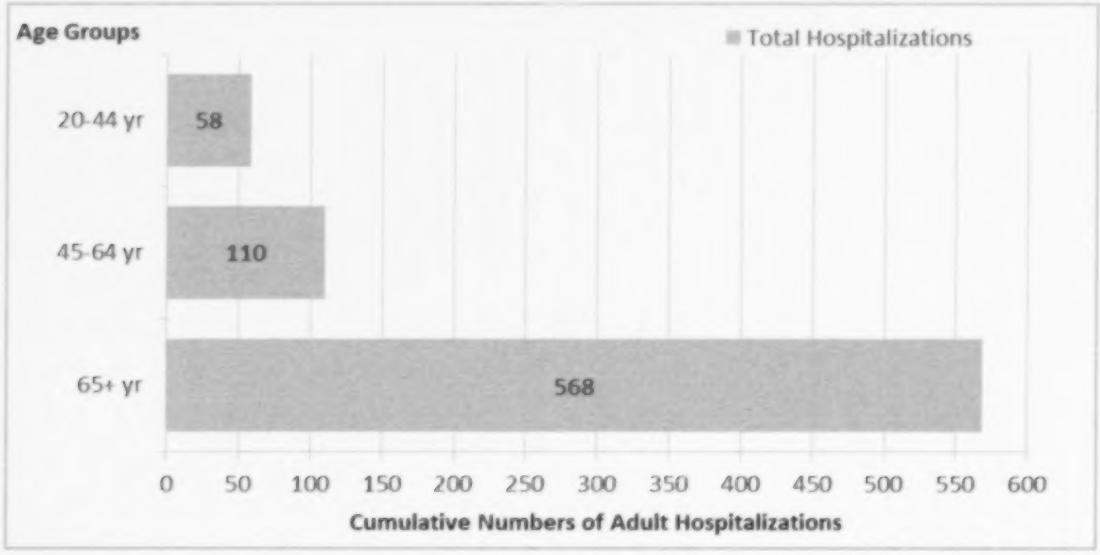


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 05

The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 560 influenza viruses [516 A(H3N2), 10 A(H1N1), 34 influenza B]. All but one influenza A virus (n=515) and all 34 influenza B viruses characterized were antigentically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Nineteen influenza B viruses were similar to the strain which is included only in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 05

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	167	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	348	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 167 influenza A (H3N2) viruses that underwent HI testing determined that 137 viruses belonged to genetic group 3C.2a and 25 viruses belonged to genetic group 3C.3a. Sequencing is pending for the remaining 10 isolates. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	10	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	15	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	19	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1] The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2] Determined by sequence analysis.
[3] WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4] Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 391 influenza viruses for resistance to oseltamivir, amantadine. All viruses were sensitive to oseltamivir and zanamivir. All 138 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 05

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	348	0 (0%)	348	0 (0%)	129	129 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	10	0 (0%)	9	0 (0%)	8	8 (100%)
B	32	0 (0%)	33	0 (0%)	NA[1]	NA[1]
TOTAL	391	0 (0%)	391	0 (0%)	138	138 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.